

## PATENT COOPERATION TREATY

PCT/DK2005/000

From the INTERNATIONAL BUREAU

H. K. K. K.

**PCT**INFORMATION CONCERNING ELECTED  
OFFICES NOTIFIED OF THEIR ELECTION

(PCT Article 31(7) and Rule 61.3)

To:

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RECEIVED

23 FEB. 2006

Zacco Denmark A/S

Date of mailing (day/month/year) 16 February 2006 (16.02.2006)		IMPORTANT INFORMATION	
Applicant's or agent's file reference P200301882 WO			
International application No. PCT/DK2005/000221	International filing date (day/month/year) 31 March 2005 (31.03.2005)	Priority date (day/month/year) 31 March 2004 (31.03.2004)	
Applicant FORCE TECHNOLOGY et al			

- The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:  
**EP:** AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR  
**National:** BG, CA, CN, CZ, DE, JP, KP, KR, MN, NO, PL, RO, RU, SK, SM, US
- The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:  
**AP:** BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW  
**EA:** AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
**OA:** BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  
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- Since the election(s) was (were) made after the expiration of 19 months from the priority date, the applicant is reminded that he must, subject to the following paragraph, enter the national phase within 20 months from the priority date (or later in some Offices) before some of the designated Offices in respect of which Article 22(1), as modified with effect of 1 April 2002, does not apply, by paying the national fee(s) and furnishing, if prescribed, a translation of the international application.

However, in respect of most other designated Offices, the time limit of 30 months (or later) may nevertheless apply. See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters, the *PCT Newsletter* and the WIPO Internet site, updated regularly.

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Date 23 January 2006  
Your ref.  
Our ref. P200301882 WO HSC/SHA

Dear Sirs,

**International Patent Application No. DK2005/000221 - PCT  
Force Technology**

COPY

Enclosed is our **PCT Demand** in relation to the above-mentioned international patent application. Please consider our below response to the International search report and the written opinion of the ISA dated 23 August 2005:

In the Written Opinion, a novelty objection is raised against claim 1 with reference to D1 (US 6,633,384).

We agree that D1 discloses an apparatus for detecting a property of an object using laser interferometry where an output signal is generated that is indicative of a surface motion of the object. However, we respectfully disagree that D1 teaches the generation of an output signal indicative of said surface motion as a ratio of a signal derived from the interferometric transmission signal and a signal derived from the interferometric reflection signal.

Firstly, as regards the output signal indicative of the surface motion, D1 discloses that the output signal is generated as a difference between the transmission signal and the reflection signal (see col. 12, line 43 – col. 14, line 10, in particular col. 14, lines 1-10). Hence, according to D1, the output signal of the interferometer is generated as a *difference* of the transmission and reflection signals rather than a ratio.

Secondly, D1 discloses a system in which the cavity is tuned such that the normalised transmission signal  $V_T / (V_T + V_R)$  -- i.e. the ratio of the transmission signal and the sum of the transmission and reflection signals -- is kept constant so as to stabilise the system (see e.g. col. 11, lines 28-62, claim 3). However, D1 does neither disclose nor hint at that this normalised ratio should be generated as the *output signal indicative of the surface motion*. In D1, the normalised transmission signal is merely used as an internal feedback signal, and the cavity is tuned such that this ratio is kept constant. In contrast to this stabilisation by maintaining the above ratio constant, D1 discusses the

*output signal* in connection with the detection of ultrasonic displacements starting at col. 12, lines 43-50 and proposing the use of the *differential* signal introduced at col. 14, lines 1-10, as discussed above, i.e. no ratio of signals.

Consequently, since the generation of an output signal indicative of the surface motion of the object as a ratio of a signal derived from the interferometric transmission signal and a signal derived from the interferometric reflection signal, it is submitted that the subject-matter of present claim 1 is novel and involves an inventive step. The same argument applies to independent claim 22.

Furthermore, in the Written Opinion, a novelty objection is raised against claim 12 with reference to D2 (DE 40 24 977). However, we respectfully disagree that D2 is concerned with controlling the resonance frequency of an optical interferometer by adjusting the resonance frequency in response to a control signal. D2 discloses an interferometer wherein a reference beam and a measuring beam are directed towards a surface. In particular, D2 discloses such a system in which the reference beam is directed towards the surface at an incidence angle  $\phi$  and wherein the reflected reference beam is retroreflected back to the surface  $n$  times such that the incidence angle and the number of times ( $2n$ ) the beam hits the surface are related according to  $\phi = \arccos(1/2n)$  (see e.g. claim 1; as well as col. 2, lines 6-24). According to D2, this provides a system in which phase differences between reference and measuring beam are avoided, thereby avoiding a control circuit for maintaining a constant cavity length (see col. 2, lines 35-45 and col. 1, lines 15-33). Hence, D2 is concerned with avoiding an active control of the cavity length. Consequently, D2 does neither disclose nor make obvious the specific control signal according to the characterising portion of claim 12. Therefore, it is submitted that the subject-matter of claim 12 is novel and involves an inventive step. The same argument applies to claim 30.

In the light of the above, it is hoped that the Examiner will issue a positive IPRP. If this is not the case, a second Written Opinion or a less formal communication, e.g. in the form of a telephone interview, would be greatly appreciated.

Yours faithfully  
Zacco Denmark A/S



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